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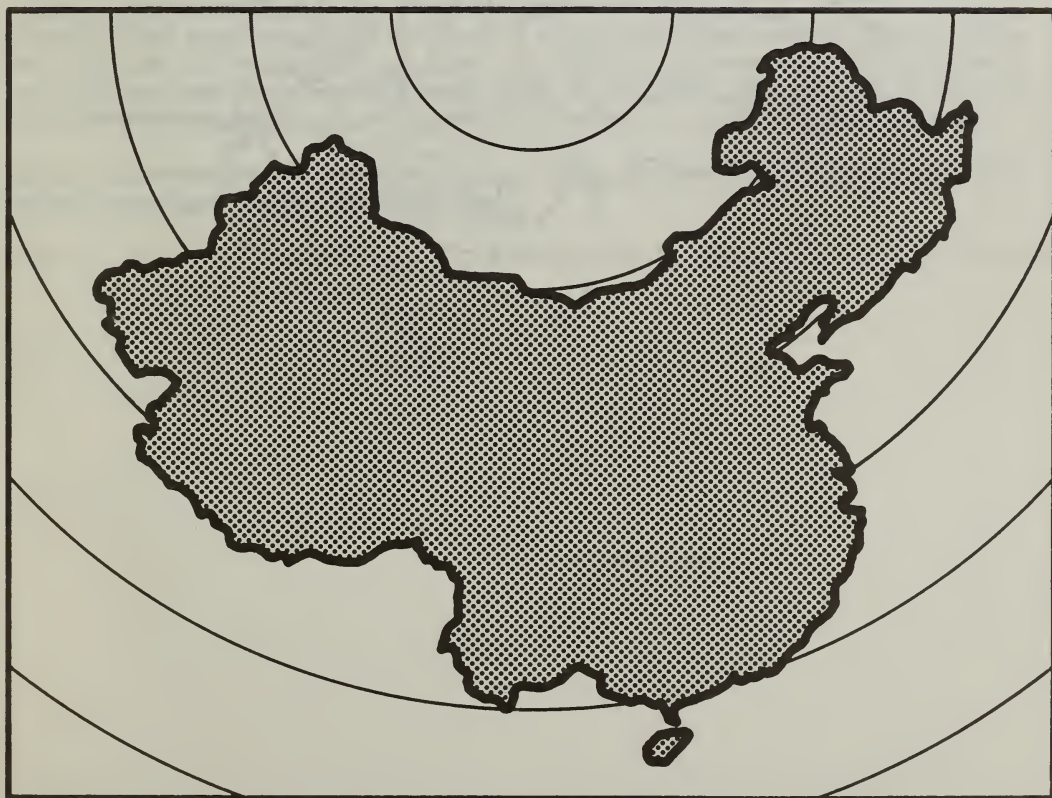
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People's Republic of China Agricultural Situation

Review of 1976 and
Outlook for 1977

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PEOPLE'S REPUBLIC OF CHINA
ADMINISTRATIVE DIVISIONS



ABSTRACT

Agricultural production in the People's Republic of China (PRC) in 1976 was disappointing. Total grain production is estimated at 267 million tons—about 1 percent below the 1975 level. U.S. agricultural exports to the PRC in 1976 were negligible, but agricultural imports from China nearly doubled from the 1975 level. The crop outlook for 1977 in the PRC is uncertain because of unfavorable weather in winter 1976 and spring 1977.

KEYWORDS: People's Republic of China, PRC, agricultural production, agricultural inputs, agricultural policies, foreign trade.

FOREWORD

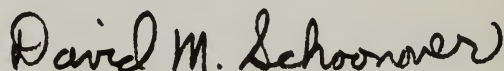
This report summarizes major agricultural developments in 1976 and the outlook for 1977 for the People's Republic of China (PRC).

The report updates and supplements statistics and other information found in Foreign Agricultural Economic Report No. 124, *The Agricultural Situation in the People's Republic of China and Other Communist Asian Countries: Review of 1975 and Outlook for 1976*. Sources are not given in the report and are available on request.

The agricultural situation in the Mongolian People's Republic, North Korea, and the Democratic Republic of Vietnam is discussed in the situation report for Asia and Oceania.

Charles Y. Liu directed and coordinated preparation of this report. Authors of the report are Frederick W. Crook, Marion R. Larsen, Charles Y. Liu, Frederic M. Surls, and Carolyn L. Whitton. Kent Syverud assisted in data collection and processing. Assistance from Deidra R. Garriss and Effie S. McConkey is greatly appreciated.

Other agricultural situation reports have been published for the USSR, Eastern Europe, Western Europe, the Western Hemisphere, the Asia and Oceania, and Africa and West Asia.



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SUMMARY

The People's Republic of China (PRC) has reported that since January 1977 dry weather has threatened the winter and early harvested crops. Urgent calls were made in March by the PRC Government to fight drought. Timely precipitation began in late March and increased through April in much of the crop producing areas. This increased the chances for a good early harvested grain crop, but, it probably will not be up to last year's record. For the longer term, the change in leadership, resulting from the death of several of China's top leaders in 1976, raises uncertainty about the PRC's future political and economic course. Major issues relating to agriculture are the investment priority for the various economic sectors, foreign trade, raising agricultural productivity, and increasing consumption levels of agricultural products.

Since November 1976, the PRC has bought 5.1 million tons of wheat from Canada, Australia and Argentina, of which about 5 million tons are scheduled for 1977 delivery. In addition, 390,000 tons of soybean imports were contracted, mostly from Brazil, for delivery in 1977. Further purchases will largely depend on the outcome of the 1977 harvest. Cotton imports by China are not expected to exceed 1976 levels because of tight world supplies and high prices. Prospects for U.S. exports of agricultural products to the PRC during 1977 appear limited.

Agricultural production in the PRC in 1976 was disappointing. Despite record investments in farmland improvement and construction last season, output of most of the major farm crops dropped from 1975 levels. The main reason was unfavorable weather, especially dry weather in the North China Plain in early spring—and all year long in the Northeast—and below-normal temperature in most of China's agricultural areas throughout the year, particularly early spring frost in southern China.

Total grain production, excluding soybeans, is estimated to be 267 million tons, 3 million tons below the 1975 level. Of the major grains, wheat increased to 43 million tons in 1976 from 40 million tons in 1975 (the 1975 figure is a revised estimate). Spring wheat production dipped because of dry and cold weather in Northeast China, but total wheat output rose because of large gains in winter wheat after timely rains from late March to May relieved much of the drought conditions. Rice production in 1976 is estimated at 118 million tons, down 1 million tons from 1975 output. The reduction in rice production was largely caused by cold and wet weather for the early rice and a delayed schedule

for the late rice crop. Most of the industrial crops lost ground in 1976. Soybean output decreased to an estimated 9.5 million tons. Cotton production dropped for the third year in a row, falling to 2.35 million tons and reducing cottonseed production to 4.7 million tons. Rapeseed production, damaged by cold temperature, fell to 1.38 million tons, while peanut output rose to 2.9 million tons.

Production of sugar, tea, tobacco, and fruit and vegetables all reportedly increased in 1976. Raw sugar production was estimated at 2.6 million tons. Gains in livestock production were probably mediocre.

The second National Conference to Learn from Tachai in Agriculture was convened in December 1976, reiterating the policy set in the first conference held only a year earlier. The death of national leaders and political uncertainty in 1976 contributed to disruptions in agricultural production and procurement.

Large efforts were reported in the work to improve land and water management. But, as in the industrial sector, only limited progress was made in increasing production of agricultural machinery and fertilizer.

Total PRC imports may have declined by more than 10 percent, while total exports did not change appreciably. As a result, China ran a surplus in hard currency trade in 1976 for the first time since 1972.

The effort to curtail imports fell heavily on agricultural products, most noticeably on grains. Total grain imports in 1976 fell to 2.1 million tons, nearly all of which were wheat. Cotton imports remained at the same level as in 1974/75—at about 150,000 tons.

On the export side, China's 1976 rice exports to reporting countries are estimated at 1 million tons, falling from 1.5 million tons in 1975. Soybean exports in 1976 appeared to be less than 200,000 tons, dropping from over 300,000 tons in 1975. In 1976, Japan, China's largest market, received only 133,000 tons, compared with about 240,000 tons a year earlier.

U.S. agricultural exports to China in 1976 were negligible, about \$44,000. However, U.S. imports from China rose by 28 percent to \$202 million. The bulk of this increase was in agricultural products, which nearly doubled from the 1975 level, rising to \$55 million. In 1976, feather and down imports quadrupled from the 1975 level to \$14 million, accounting for 26 percent of total agricultural imports from the PRC.

People's Republic of China Agricultural Situation

Review of 1976 and Outlook for 1977

The People's Republic of China experienced unusually unfavorable weather during much of the 1976 growing season. In addition, events of historical proportion occurred, including the death of several top leaders, a high-level political purge, several severe earthquakes, and a possible switch

of China's economic course. These events resulted in indecision on adoption of the new 5-year plan and put a heavy strain on all of the major economic sectors, including agriculture. Consequently, the PRC suffered slow economic growth in 1976.

PAST AGRICULTURAL POLICY LIKELY TO CONTINUE

China's fifth 5-year plan, scheduled to begin in 1976, was not approved by the National People's Congress before the beginning of the year. Dramatic political changes, shifts in top leadership personnel, and natural disasters prevented the formal approval of the plan in 1976. These same events apparently also hindered economic activity, as China ended the year with little or no increase in the agricultural sector and only modest growth in the industrial sector. Overall growth of the economy dropped to the lowest rate in recent years.

The year of the Dragon (1976) was an extraordinary one, marked by the following major political changes, deaths and appointments of major leaders, and natural disasters.

January 8	Chou En-lai, Premier, died.
April 7	Teng Hsiao-ping, Vice Premier, was removed from all political posts, and a virulent campaign was launched to attack his economic policies.
April 7	Hua Kuo-feng was appointed Premier and First Vice Chairman of the Central Committee of the Chinese Communist Party.
July 6	Chu Teh, Chairman of the Standing Committee of the National People's Congress, died.
July 28	Earthquake in Tang-shan, Hopeh Province.
August 16	Earthquake in Szechwan Province.
September 9	Mao Tse-tung, Chairman of

the Chinese Communist Party, died.

October 12 Hua Kuo-feng was appointed Chairman of the Central Committee of the Chinese Communist Party.

October 21-29 The "Gang of four"—Chiang Ching (Mao's wife), Wang Hung-wen, Chang Ch'un-chiao, and Yao Wen-yuan—were denounced, and a campaign against them lasted through the end of the year and continued into 1977.

November 9 Earthquake in Yunnan Province.

December 10 The Second National Tachai Conference was convened.

In addition to the events listed above, some unusual weather patterns occurred in 1976. Below-normal temperatures damaged crops and upset planting and harvesting schedules in South China in the spring season. Dry weather in North and Northeast China affected spring wheat and soybean crops. Although no claims of crop losses were made, heavy rains were reported in October, bringing the largest flow of water in the Yellow River since 1958.

The first priority for the new leadership this year will be to try to consolidate its position. At the same time, an attempt will be made to reach agreement on economic development policy. The convening of national conferences—agriculture (Tachai Conference, December 1976); coal (January 1977); transportation (Railroad Conference, Febru-

ary 1977); defense (February 1977); and industry (Taching Conference, April 1977)—suggests economic policy issues are being resolved. If the new leadership is successful in consolidating its position and in reaching agreement on economic policies, the fifth 5-year plan (FFYP) could be approved sometime in 1977. The new leaders probably will pursue the longrun development strategy outlined by the late Premier, Chou En-lai, at the Fourth National People's Congress in 1975. That strategy had two stages. The first stage, from 1966 through the end of the fifth FYP (1976-80), was to complete "...an independent and relatively comprehensive industrial and economic system..." by 1980. The second stage was to achieve "...comprehensive modernization of agriculture, industry, national defense, and science and technology before the end of this century."

Chairman Hua's strong support of the First and Second National Tachai Conferences suggests that agriculture will continue to receive high priority in 1977. Policies of the past several years will continue this year. Progress will be made toward basically mechanizing agriculture by 1980, and more counties will achieve Tachai-type status. Grain production will be stressed again this year, but where communes have fulfilled grain needs, increased production of fiber, oilseeds, other technical crops, livestock, and subsidiary production

will be emphasized. Per hectare crop yields will be improved through better management, improved seeds, increased use of chemical fertilizer, and increased use of machines and irrigation. Again, much effort will be devoted to conserving and storing grain at local levels. The production team will continue to be the most important agricultural production unit, and it will still be the basic unit of account. Incentives for farmers will continue to be based on the work payment system, which rests on the principle of remuneration according to work done; on the use of private plots; on the growing supply and variety of consumer goods available to farmers; and on the reduction of input prices. Again in 1977 massive amounts of labor will be mobilized to improve fields, and to construct roads and water control projects.

An old policy, which received increased emphasis in the latter part of 1976 and which probably will be stressed in 1977, is the growth of non-agricultural enterprises at the commune and brigade levels. The increased income from these enterprises will be used to finance the mechanization of agriculture by increasing the income going to brigade and commune levels. By reducing the financial independence and importance of the production team, the commune system will move one step closer to socialist ownership of the means of production. (*Frederick W. Crook*)

AGRICULTURAL PRODUCTION DOWN IN 1976

China's agriculture fell short of expectations in 1976. With few exceptions, production of the major crops in the PRC in 1976 was less than in 1975, primarily because of poor weather and despite massive effort in capital construction. A national claim of a record grain crop was not supported by harvest reports from the provinces. China's major commercial crops, cotton and oilseeds, were not mentioned in the same report that indicated an increase in bast fibers. Sugar crops, tobacco, and other unspecified industrial crops registered increases. Peanuts probably were the only major oilseed to show an increase; the soybean crop was down because of unfavorable weather in the northern part of the country.

The availability of food on a per capita basis for the 1976/77 consumption year, therefore, probably will be less than the previous year unless the grain ration is supplemented with higher imports or by additional drawdowns of grain from domestic stockpiles.

Grain Output Off

In 1976, as in 1975, the official yearend report claimed that total grain output "set an alltime

record" and that the majority of the provinces, municipalities, and autonomous regions¹ surpassed or reached the 1975 level in grain production. A close study of individual provincial reports, however, reveals information that does not support the national claim. A majority of the provincial-level units, 16 out of 29, reported increases over 1975. Four of these units (Honan, Inner Mongolia, Kiangsu, and Kwangtung) had registered production declines in 1975. Thus, only 12 provincial-level units registered increases in total grain output in both 1975 and 1976. Of the 12 provincial-level units that did not report increases in 1976, 6 (Chekiang, Kweichow, Shanghai, Szechwan, Tientsin, and Yunnan) had not reported an increase in 1975 (see app. table 1).

Based on the provincial reports, it is estimated that total grain production in 1976 declined about 1 percent below the 1975 level, but was slightly higher than the 1974 level.² Revised estimates for grain production for 1972-76 are shown in table 1.

¹Hereafter referred to as provincial level units.

²Grain production data in this report exclude soybeans, but include the grain equivalent of tubers unless otherwise specified.

Table 1--Production of grain, People's Republic of China, 1972-76 ^{1/}

Year	Total	Rice	Wheat	Miscellaneous grains ^{2/}	Tubers (grain equivalent ^{3/})
Million metric tons					
1972	240.0	109.0	36.0	72.0	23.0
1973	250.0	113.0	35.0	78.0	24.0
1974	265.0	120.0	37.0	83.0	25.0
1975	270.0	119.0	40.0	86.0	25.0
1976	267.0	118.0	43.0	82.0	24.0

^{1/} Changes in grain estimates, resulting from additional information, include an increase in the production of wheat and miscellaneous grain and a reduction in tubers. The increase in miscellaneous grains resulted from upward adjustments in corn production and a downward adjustment in the barley series since 1961. Previous adjustments of ERS estimates in China's major grain categories were made in: The Agricultural Situation in the People's Republic of China and Other Communist Asian Countries, Review of 1974 and Outlook for 1975, Foreign Agricultural Economic Report No. 111, Sept. 1975, and The Agricultural Situation in the People's Republic of China and Other Communist Asian Countries, Review of 1975 and Outlook for 1976, Foreign Agricultural Economic Report No. 124, Aug. 1976, both published by the Economic Research Service, USDA.

^{2/} Miscellaneous grains include corn, barley, millet, Kaoliang (sorghum), oats, rye, buckwheat, other minor grains and pulses.

^{3/} A derived figure of one unit of grain for four units of tubers.

Early Harvested Grains Set Record

There is little reason to doubt the official claim that the early harvest of grain set another record.³ However, the achievements of the various crops that make up the early harvest were somewhat different than usual. Both wheat and barley increased substantially in 1976, while early rice did not fare as well as usual.

³The early harvest, of which summer harvested grains are an important component, includes crops harvested from the first of the year to the beginning of autumn on the lunar calendar. According to information from the Chinese Academy of Agriculture Science, the beginning of autumn on the lunar calendar is roughly August 8 on the western calendar. The crops are winter crops (winter wheat, rapeseed, barley, rye, pulses, sweet potatoes, and early corn), various fast-maturing catch crops planted in the early spring and harvested in midsummer, spring wheat, and early rice.

Heavy precipitation in some areas caused problems in the 1975 fall sowing, but there was still a significant increase in the acreage of the winter crops (one official claim was 667,000 hectares). Winter wheat and winter barley acreage was increased substantially. In the spring, dry conditions prevailed in the northern and western parts of the North China Plain, necessitating extensive and early irrigation of the winter wheat crop. Rain in April and May, however, was adequate to mature the crop, and the harvest set a record.

The dry conditions also hampered the planting of spring wheat in some areas, resulting in a slight decrease in area planted. However, preplanting-irrigation, subsequent rainfall, and supplemental irrigation resulted in a better 1976 spring wheat crop than expected in some areas, but the total spring wheat crop was somewhat less than in 1975. Nevertheless the combination of increased yields and

expanded acreage of the winter wheat crop were sufficient to boost China's total wheat crop to the largest ever.

In 1975 and 1976 there were increasing references to the "three wheats" (winter wheat, winter barley, and naked, or hull-less, barley). This was especially true for the Yangtze River Basin (Kiangsu, Shanghai, and Anhwei), where winter wheat or a barley crop is rotated with the rice crop. The more rapidly maturing barley crops are probably becoming increasingly prominent in this region, where the practice of triple-cropping is moving northward, since China apparently has not yet developed a satisfactory fast-maturing variety of winter wheat to enable use of a triple-crop rotation of wheat-rice-rice in this area. As a result of the shorter growth cycle of barley and its greater tolerance for the prevailing moisture conditions in the Yangtze River Basin, the additional crop of grain per year called for in the triple-crop cycle can be obtained. Thus, the acreage planted to barley probably increased in both 1975 and 1976.

Other winter grains, primarily the pulses, are grown mainly south of the Yangtze River. In 1976, frost and a late spring accompanied by cold spells hampered growth of these crops.

The early rice crop, although belatedly transplanted on an expanded acreage, did not fare well. The cold, wet spring not only retarded growth but also caused substantial rotting of seedlings. Some fields in Kwangtung Province, for example, were transplanted four times. The retarded growth of the crop caused delays in planting the crops that follow early rice in the rotation. Some of the early rice crop was being harvested at the same time as the first part of the intermediate rice crop. Claims to the contrary, it is estimated that the early rice crop fell short of the 1975 crop, which was less than the record 1974 crop. Despite the decline in early rice in 1976, the total early grain harvest, which constitutes about 40 percent of total grain, appears to have somewhat exceeded the 1975 harvest because of the substantial increase in the winter wheat and barley crops.

Late Harvested Grain Hurt by Weather

The output of the late harvested grains⁴ in 1976 was somewhat similar to that of the 3 preceding years—below expectations primarily because of adverse weather. Acreage of late harvested grain crops probably did not increase, and it is probable that yields, in general, did not equal those in 1975. Problems with late harvested grains are a major

reason for China's massive program of multiple-cropping, whereby an attempt is made to expand crop production in the earlier part of the growing season.

Agricultural officials were concerned in the fall about the possible effect of frost on late developing crops. Not only were crops delayed because of weather, but the daily temperatures during most of the summer and early fall were consistently below normal.

During the growing season of late harvested crops, precipitation favored crop growth in the North China Plain and in most of the southern areas of rice cultivation. In Southwest, Central, East, and especially in Northwest and Northeast China, precipitation fluctuated generally from about normal, to below normal with some cropping areas going without adequate rainfall for extended periods of time—especially in Northwest and Northeast China, areas of miscellaneous grain production.

As is generally the case in China, the majority of provinces claiming an increase in grain production in 1976 were those with relatively high precipitation or with sufficiently advanced irrigation systems. This was especially true in major areas of production. Miscellaneous grains in the North China Plain had adequate moisture during the late harvested grain growing period and a good crop resulted. Miscellaneous grains grown in the Southwest and Northwest fared less well because of inadequate moisture. Those in Northeast China, which had below normal precipitation from mid-June through the harvest period, suffered most, particularly in areas without adequate supplemental irrigation facilities. Northeast and Northwest China grain production areas are among the least developed in terms of progress in irrigation projects.

Output of the intermediate and late rice crops is difficult to assess since few reports mentioned these crops. However, the provinces claiming the highest increases in grain production were generally outside the rice growing area. It is estimated that the intermediate and late rice crops did not do as well as the mediocre crops in 1975. This decline, together with the setback in the early rice crop, leads to the conclusion of a slightly smaller total rice crop in 1976. (*Marion R. Larsen*)

Soybean Production Drops Slightly

Soybean production for 1976 is estimated to be down half a million tons from 1975 output of 10 million tons. As has been the case since 1961, China's yearend report on agricultural performance for 1976 did not evaluate soybean production. Yearend summary reports from provinces in the major soybean producing areas of Northeast

⁴Late harvested grains include intermediate rice, late rice, tuber crops, corn, sorghum, millet, and other minor grains. They are harvested from the first part of August to December.

and North China made no mention of soybean production, which suggests the crop was disappointing this year. Soybean yields in the Northeast, which has about one-third of China's production, are estimated to be down in 1976 because of an unseasonably cold, moist spring, followed by below-normal precipitation in July and August. Yields in the other producing regions are judged to be at normal levels (table 2). (*Frederick W. Crook*)

Other Crop Output Mixed

Most Oilseeds Down; Peanuts Up

That the PRC's national yearend crop reports did not mention oilbearing crops in 1976 suggests that total production of both edible oilseeds and soybeans was down from 1975. Production of two of the major oilseeds, rapeseed and cottonseed, declined. Production of the other major oilseed, peanuts, registered an increase, but that was insufficient to offset the decreases registered by the other oilseeds (table 2). Thus, cooking oils, rationed since 1955, continue to be in a short supply situation for 1977.

Rapeseed production is estimated to have declined from 1.395 million tons in 1975 to 1.380 million tons in 1976, despite a minor increase in area planted to the winter crop. Of the 11 major provinces that produce winter rapeseed, only 2 reported an increase in 1976 production, while 1 admitted it was short of plan. There was a similar lack of reports from provinces producing spring and summer rapeseed, which suggests that total rapeseed production declined. Some of the winter crop may have been killed by the abnormally cold spring weather, and growth of the crop that survived was probably delayed and yields were down. The lengthened season could have encroached upon the spring and summer crop season, causing some of the rapeseed crop to be plowed under as a green manure crop in favor of planting the grain crops on time. Even if the spring and summer rapeseed crops had fared better, their portion of the total is sufficiently small that they would not have changed the picture of a decrease in total rapeseed production in 1976.

The 1976 production of peanuts (in the shell) is estimated to be 2.9 million tons, an increase over 1975. Increased output was claimed by Shantung and Kwangtung Provinces, two of the largest peanut producers. Although no other provinces reported on peanuts in 1976, this is not unusual since in previous years there have also been few reports on peanuts. Thus, the 1976 crop appears to have maintained an increase similar to that in previous years.

The PRC only occasionally reports on the other

oilseeds. Cottonseed, one of the more important edible oil-bearing crops, is believed to have registered a decrease in output in 1976 corresponding to the decrease in cotton output. Sesame production was reported to have been increasing since the start of the Cultural Revolution in 1965, but no specific comment was made on 1976 performance. No reports were made during the year on sunflowerseed production.

There were few reports of progress of the more important oilseeds in 1976, but more than the usual number of minor oilseed claims were made. There was reportedly a large increase over the last decade in area planted to olive trees, and it was reported that trees from the original planting in 1964 were beginning to have good yields in 1976. Production of tea-seed (*camellia oleosa*) oil seems to be gaining in importance. During the past several years, some of the major tea-seed tree growing provinces, such as Hunan, Kwangsi, and Fukien, have consistently reported its development, although the yields reported are still relatively low. In 1976, tea-seed tree area was reportedly 6 percent over that of 1975 and 26 percent over 1965. Production reportedly increased over 1975 output to a level that was more than 50 percent over the 1965 level. The significance of these minor edible oilseeds remains small despite their domestic progress.

Among the industrial-use oilseeds, castor beans were reportedly planted on increased area in 1976. Castor bean production was reported only to have been increasing since the start of the Cultural Revolution, with no reports on 1976 progress. No reports were made in 1976 on the other industrial-use oil-crops, linseed and tung oil. Development of two new oilseeds, the *yusha* bean (*chufa* or *cyperus esculentus*) and the *wenkuan* fruit tree (*shinyleaf yellowhorn*), was reported. The trend in production of all these minor oilseeds appears to favor those which have multiple uses—such as afforestation to prevent soil erosion, timber, and bearing oilseeds—over those needing the soil, fertilizer, and care of field crops. (*Carolyn L. Whitton*)

Cotton Output Down For Third Consecutive Year

ERS estimates that cotton production in the PRC declined slightly in 1976, falling an estimated 2 percent to 2.35 million tons (table 3). This would be the third successive decline, putting production in 1976 about 8 percent below the record crop of 1973.

The 1976 estimate is based primarily on yearend claims. National crop reports failed to mention cotton production, but claimed increases for a number of other crops; this is interpreted as indicating a decline in cotton production. Nine cotton producing

Table 2--Area, yield, and production of soybeans and major vegetable oilseeds,
People's Republic of China, 1949-76 1/

Year	Soybeans				Peanuts				Rapeseed				Cottonseed			
	Area	Yield	Pro- duction	Area	Yield	Pro- duction	Area	Yield	Area	Yield	Pro- duction	Area	Yield	Area	Yield	Pro- duction
	1,000 hectares	Kg./ha.	1,000 tons	1,000 hectares	Kg./ha.	1,000 tons	1,000 hectares	Kg./ha.	1,000 hectares	Kg./ha.	1,000 tons	1,000 hectares	Kg./ha.	1,000 hectares	Kg./ha.	1,000 tons
1949	8,319	611	5,086	1,254	1,011	1,268	1,515	484	1,270	484	734	2,770	321	2,770	321	889
1950	9,602	864	8,125	1,344	1,294	1,739	1,423	480	1,423	480	683	3,786	366	3,786	366	1,386
1951	10,787	800	8,630	1,667	1,257	2,096	1,567	496	1,567	496	778	5,485	376	5,485	376	2,062
1952	11,679	815	9,519	1,804	1,284	2,316	1,863	500	1,863	500	932	5,576	468	5,576	468	2,610
1953	12,362	803	9,931	1,775	1,198	2,127	1,667	527	1,667	527	878	5,180	454	5,180	454	2,352
1954	12,654	718	9,080	2,097	1,320	2,767	1,706	515	1,706	515	878	5,462	390	5,462	390	2,130
1955	11,442	797	9,121	2,268	1,290	2,926	2,338	414	2,338	414	969	5,773	526	5,773	526	3,037
1956	12,047	850	10,234	2,583	1,292	3,336	2,165	426	2,165	426	923	6,256	462	6,256	462	2,890
1957	12,740	788	10,045	2,541	1,011	2,570	2,333	380	2,333	380	886	5,776	568	5,776	568	3,281
1958	9,850	1,066	10,500	2,373	1,180	2,800	2,528	435	2,528	435	1,100	5,723	560	5,723	560	3,205
1959	9,870	1,165	11,500	2,000	1,134	2,268	2,700	344	2,700	344	930	5,700	474	5,700	474	2,702
1960	9,300	882	8,200	1,820	1,022	1,860	2,900	347	2,900	347	1,005	5,300	342	5,300	342	1,813
1961	8,300	952	7,900	1,530	1,098	1,680	1,740	399	1,740	399	695	3,700	480	3,700	480	1,776
1962	7,900	975	7,700	1,520	1,072	1,630	1,390	447	1,390	447	621	3,400	588	3,400	588	2,000
1963	8,000	880	7,040	1,620	1,173	1,900	1,450	464	1,450	464	673	4,050	544	4,050	544	2,203
1964	8,300	836	6,940	1,880	1,218	2,290	1,600	519	1,600	519	831	4,500	666	4,500	666	3,000
1965	8,100	844	6,840	1,940	1,186	2,300	1,700	490	1,700	490	834	4,770	692	4,770	692	2,997
1966	8,000	850	6,800	2,000	1,180	2,360	1,750	500	1,750	500	876	4,700	770	4,700	770	3,620
1967	8,180	850	6,950	2,000	1,150	2,300	1,730	559	1,730	559	967	4,800	808	4,800	808	3,878
1968	8,000	810	6,480	1,900	1,132	2,150	1,710	548	1,710	548	937	4,750	762	4,750	762	3,620
1969	8,000	775	6,200	2,000	1,175	2,350	1,700	482	1,700	482	820	4,700	754	4,700	754	3,544
1970	8,000	862	6,900	2,100	1,262	2,650	1,675	555	1,675	555	930	4,800	833	4,800	833	3,998
1971	8,100	827	6,700	2,150	1,200	2,580	1,840	538	1,840	538	990	4,850	916	4,850	916	4,443
1972	8,400	774	6,500	2,200	1,091	2,400	2,100	567	2,100	567	1,190	4,900	868	4,900	868	4,253
1973	8,500	941	8,000	2,100	1,238	2,600	2,275	576	2,275	576	1,310	4,850	1,062	4,850	1,062	5,151
1974	8,800	1,079	9,500	2,100	1,286	2,700	2,375	487	2,375	487	1,157	4,850	1,031	4,850	1,031	5,000
1975	9,200	1,087	10,000	2,150	1,302	2,800	2,680	520	2,680	520	1,395	4,850	990	4,850	990	4,802
1976	9,100	1,044	9,500	2,200	1,318	2,900	2,690	513	2,690	513	1,380	4,900	959	4,900	959	4,700
1977																
1978																
1979																
1980																

1/ Acreage and production data for 1949-57 from Ten Great Years, People's Publishers, Peking, Sept. 1959, and other official sources. Data for 1958-76 are ERS estimates.

Table 3--Area, yield, and production of cotton, People's Republic of China, 1949-76 1/

Year	Area	Yield	Production		
	1,000 hectares	Kg./ha.	1,000 m. tons		
		Bales/ha. 2/	1,000 bales 2/		
1949	2,770	160	.73	444	2,011
1950	3,786	183	.84	692	3,178
1951	5,485	188	.86	1,030	4,731
1952	5,576	234	1.07	1,304	5,989
1953	5,180	227	1.04	1,174	5,392
1954	5,462	195	.90	1,065	4,891
1955	5,773	263	1.21	1,518	6,972
1956	6,256	231	1.06	1,445	6,637
1957	5,776	284	1.30	1,640	7,532
1958	5,723	280	1.28	1,600	7,349
1959	5,700	237	1.09	1,350	6,200
1960	5,300	171	.78	905	4,157
1961	3,700	240	1.10	890	4,088
1962	3,400	294	1.35	1,000	4,593
1963	4,050	272	1.25	1,100	5,052
1964	4,500	333	1.53	1,500	6,889
1965	4,770	346	1.59	1,650	7,578
1966	4,700	385	1.77	1,810	8,313
1967	4,800	404	1.86	1,940	8,910
1968	4,750	381	1.75	1,810	8,313
1969	4,700	377	1.73	1,770	8,129
1970	4,800	416	1.91	2,000	9,186
1971	4,850	458	2.10	2,220	10,196
1972	4,900	434	1.99	2,125	9,760
1973	4,850	526	2.41	2,550	11,712
1974	4,850	515	2.37	2,500	11,482
1975	4,850	495	2.27	2,400	11,023
1976	4,900	480	2.20	2,350	10,793

1/ Acreage and production data for 1949-57 are from Ten Great Years, People's Publishers, Peking, Sept. 1959, and from other official sources. Data for 1958-76 are ERS estimates. Production is in ginned weight.

2/ Bales are 480 pounds.

provinces, accounting for slightly less than two-thirds of estimated national acreage, claimed increases in production, but six of these gave no indication of the size of the increase, indicating that it was probably quite small. The major producing provinces of Szechwan and Hopeh failed to report, as did several smaller producers; production may have been sharply down in these provinces. The provincial claims, if true, are difficult to reconcile with the fact that there was no mention of cotton production in the national report. The 1976 figure is therefore only a tentative estimate, indicating a direction of change and the assessment that the change was small.

If there was a production decline in 1976, it was due to a drop in yields. Sown acreage for the year increased by about 50,000 hectares; most of the increase was in Anhwei Province. However, below normal temperatures throughout the year in most growing provinces may have held down yields. Drought was reported to be affecting production in Szechwan, and cool fall weather accompanied by heavy rains was reported to have hurt production in major growing areas in Hopeh Province.

China's cotton supply situation is apparently tight, although stock and synthetic fiber availability are not known with certainty. A series of provincial cotton conferences early in 1977 indicated that production in recent years has been below expectations. These conferences have also stressed that cotton is to receive increased attention and higher priority in 1977. (*Frederic M. Surls*)

Sugar, Tea, and Tobacco Up

Total sugar crop production in 1976 reportedly increased over 1975; however, the increase was not broken down into the separate achievements of cane and beet crops. Sugar beet production in 1976 was apparently good. In Kirin and Inner Mongolia, two of the three largest producers, irrigated area increased, and beet production reportedly increased 20 and 52 percent, respectively. However, in the largest producing area, Heilungkiang, where irrigated area also increased, the crop apparently suffered from adverse weather. Larger increases in production, on greatly expanded acreages, were reported by the two newer secondary producers, Shansi and Sinkiang. These increases apparently helped outweigh the problems encountered by Heilungkiang and the other nonreporting secondary producers, so that there was an increase in total beet production.

Sugar cane production probably rose in 1976, because all three provinces in the Southeastern Region, the number-one producing area, with nearly two-thirds of the total area, reported larger cane production. The Southwestern Region, the second largest cane producing area, did not report on

the 1976 crop, nor did the secondary producers in the Eastern and Central Regions. However, because of the secondary producer's smaller portion of total cane area, a substantial decrease would have had to occur in these areas to offset the large increase registered in the Southeastern Region.

Thus, the claim that total sugar production exceeded that of 1975 is substantiated by advances of both major cane and beet producers more than offsetting the possible losses by secondary producers.

National production of tea reportedly increased in 1976. Several of the major producing provinces, including Anhwei, Chekiang, and Hunan, possibly the three largest tea producers, reported increased total production in 1976. Moreover, all of the tea producers of any size had already reported a "good" or increased spring tea harvest, which makes up the larger portion of the total harvest in most producing areas. There were also many reports of increased tea acreage in these major producing areas in 1976. The claim that 1976 total tea production exceeded that of 1975 seems reasonable.

Tobacco production also reportedly increased in 1976. Honan Province, one of the largest producers, reported a 20-percent increase in production, but the other major tobacco producers failed to report. Most of the secondary producers reported some increases in 1976 production. (*Carolyn L. Whitton*)

Livestock Reports Focus on Development

Despite an official report that animal husbandry made "fairly big progress," as did forestry, fisheries, and sideline production, 1976 was probably an average to a poor year for China's livestock industry. Scattered reports from the provincial, prefecture, county, and commune level provide no indication of goals or plan fulfillment during the first year of the proposed 5-year plan. Rather, available reports mention only longer range goals established under the National Agricultural Development Program (NADP) of the 1950's.

Most of the reports focus on the development of factors which, in the long run, will provide the means for attaining the goals set forth in the livestock plans. For example, reports from China's vast area of livestock production (including the autonomous regions of Sinkiang, Inner Mongolia, and Ningsia-Hui and the Provinces of Kansu, Tsinghai, Heilungkiang, and Szechwan) have said less about numbers of livestock during the past few years, but did report considerable progress during 1976 on projects, including the improvement of grassland and the development of cultivated pastures where conditions permit. Some reports mention mechanization of animal husbandry, expansion of winter shelter construction, and improving

the quality of livestock in the grassland areas (especially sheep and horses) and of hogs in the agricultural areas. Furthermore, the quality of care provided at lambing and calving time has significantly increased the survival rate of young livestock in highland areas where abrupt changes in the weather in late winter and early spring previously devastated some flocks and herds.

From provincial reports, some trends begin to emerge with respect to recent developments in China's livestock industry. In 1976, Heilungkiang claimed to be China's major dairy area, accounting for one-fourth of the country's total output of milk and milk products.

Inner Mongolia claims the distinction of supplying the most draft animals and slaughter animals to other parts of the country. It was claimed that a total of 25 million head had been distributed during the past 5 years. Facilities for processing animal products also have been expanded. Furthermore, an accelerated program is under way to improve and intensify the use of the vast grassland area in an effort to further increase the number of livestock, especially horses and sheep.

Although no confirming statistics have been released, there are indications that the number of large animals, particularly horses, cattle (oxen), and buffaloes continues to increase. These three categories, especially horses, are maintained primarily for draft purposes. Increasing references to a dairy industry, in which both cattle and buffaloes have been mentioned, indicates that the use of these categories of animals is changing—from draft to other productive capacities (animal products)—more than their numbers are changing. This trend is expected to continue as greater mechanization of agricultural practices occur. Sheep are increasingly being improved to provide both better grades of wool and larger fleeces. Plants for processing of animal products continue to expand in the livestock production areas.

It appears that 1976 was a year for consolidating gains in the 1974-75 collectivization of hog raising. Some collectivization occurred in 1976, but the magnitude of the effort obviously fell far short of the previous year. Whether this was the result of

negative effects of collectivization is not clear. The unsettled political situation and the natural calamities that affected crop production probably were limiting factors.

Under the NADP, peasant households were to raise two and one-half to three hogs on the average. That goal has been extended and now includes one hog per cultivated mou or one hog per peasant worker. At the Tachai Conference in December 1976, it was claimed that during the year an additional 100 or more counties had advanced to the status of the 317 advanced counties already at the Tachai standard level. This indicates that some counties had the potential for increasing livestock numbers, particularly hogs, during 1976. This is not a sure gauge, however, since it is probable that many farming units probably were very near to fulfilling the Tachai requirements at the time the program was instituted.

There is insufficient official information to determine the level of hog production. Except for some possible disruption in the raising of hogs because of collectivization in 1974 and 1975, it appears that hog production in the PRC has followed a fairly constant upward trend in recent years. Applying the longterm trend value of the increase in the number of hogs from 1949 to 1975 (an annual compound growth rate of 5.45 percent—from 57,752,000 hogs in 1949 to 231,000,000 hogs in 1975), a figure of slightly fewer than 245 million hogs by the end of 1976 can be derived.

The Inner Mongolian Autonomous Region, although a small producer and a newcomer into commercial production, continued to expand the number of hogs in 1976. Provincial-level units claiming increases in hogs were Sinkiang, Kansu, Yunnan, Inner Mongolia, Tsinghai, Tibet, and Heilungkiang. Except for Yunnan, these provinces and autonomous regions have been comparatively small producers. Some have only recently developed a hog industry. Limiting factors include the nature of agricultural production (slow development of grain production), cold temperatures and long winters, inadequate shelter facilities, and cultural characteristics of certain peasant groups. (*Marion R. Larsen*)

AGRICULTURAL INPUT GAINS MIXED

Land and Water Projects Set Record

Farmland and water facility construction efforts in the PRC 1975/76 (from winter 1975 to the end of September 1976) began with numerous reports of significant progress over the record set in the 1974/75 season. Although the number of reports in the second half of the season was less than usual, the peak of land and water improvement work

occurs early in the year. Therefore, the claim in early 1976 that the 1975/76 land and water improvement season was a record season seems reasonable.

The number of persons and cadres involved in the 1975/76 winter-spring construction of water projects reportedly increased, but this labor still represented only around 20 percent of the total

agricultural population. The amount of earth and stone work completed in both farmland and water system construction during the 1975/76 season was claimed to have increased significantly over the upwardly revised 1974/75 claim. As a result of gains in both the number of people involved and the amount of work accomplished, the total number of projects completed reportedly exceeded its previous peak (table 4).

Tachai-type Farmland Improvement Emphasized

Each category of land improved showed greater progress in 1975/76 than in the previous season. However, it is not known whether these improvements in and additions to cultivated area were offset by subtraction from cultivated area for nonagricultural uses, such as roads, housing, and industries.

Table 4--Total land and water construction, People's Republic of China, selected data, 1974/75-1975/76 1/

Year	Labor investment		Earth and stone work completed	Projects completed
	Persons	Cadres		
	<u>Millions</u>		<u>Billion cubic meters</u>	<u>Millions</u>
1974/75.....	100	1.0	<u>2/15</u>	<u>3/1.5</u>
1975/76.....	150+	1.5	25	<u>4/</u>
1976/77.....				
1977/78.....				
1978/79.....				
			<u>Percent</u>	
Increase.....	50	50	67	--

1/ Data are season's final figures (through September) unless otherwise indicated.

2/ Figure revised from data published in The Agricultural Situation in the People's Republic of China and Other Communist Countries, Review of 1975 and Outlook for 1976, Foreign Agricultural Economic Report No. 124, Economic Research Service, USDA, Aug. 1976, p. 25.

3/ Data through end of June.

4/ Number of projects completed through end of the first quarter of 1976 are reported to have exceeded those of the previous peak, probably the year-earlier period.

In the early reports, all categories of improved land achieved increases over the 1974/75 season. The larger gains achieved by land leveled, land freed of waterlogging, and low-yield land transformed suggest continued emphasis on following the Tachai development program to improve land and increase crop yields, and on preparation of larger sized fields for mechanization (table 5).

There were few new figures reported during the year on specific types of land—arable, afforested, pasture, and cultivated—or on the capacities and total numbers of water facilities constructed (table 6).⁵ The exception was the area of “basic pastoral” land, which reportedly increased 55 percent. Basic pastoral land, which still represents a small portion of the total grassland area, is apparently an irrigated grassland on which improved pasture grasses have been sown and which is managed more meticulously than unimproved rangeland. In the second half of 1976, two grassland and pastoral conferences were held in preparation for further pasture improvements in the 1976/77 season. This trend toward improving pastureland is directly related to the increasing emphasis on improving and extending the irrigated area in the Northwest Region

Irrigation Stressed

In the 1975/76 season 4.3 million hectares of irrigated land was either newly added or improved. This was only a 7.5 percent increase over the previous season's 4.0 million hectares. Incomplete data suggest that new irrigated area alone was about the same as the past 5 year's average of 1.6 million hectares.

Most of the increase in the irrigated area was in the North, Northeast, and Northwest. In the last few years, these regions have experienced below-normal precipitation at critical periods during the growing season. As a result of these additions, the portions of the total irrigated area located in each of these three regions increased for the second consecutive season. In addition, the portion of total irrigated area located in the Eastern Region also increased in the 1975/76 season (tables 7-8).

⁵Although the PRC failed to report a new national figure during the 1975/76 season for a number of land and water categories, lack of such a report does not necessarily indicate lack of progress in that category during the season. It probably does suggest, however, that the additions made to the category during the season did not raise the total national figure to the next rounded million. For example, for several years the number of high-stable-yield fields was reported to be 33 million hectares and last season reached 34 million hectares. Although some fields may have been added to this category in 1975/76, the number added was probably not enough to enable the PRC to report a national total of 35 million hectares this season; thus, no new report was made.

Continued emphasis on farmland improvement and water system construction, particularly in the northern areas, should further enhance the stability of outputs and yields of wheat, miscellaneous grain, cotton, and soybeans. Land improvement continues to facilitate increased mechanization. More timely, controlled application of water, due to improvements in its delivery, continues to enhance the effect of the other inputs. As the improvements in pasture areas continue to grow, eventually livestock should also benefit. (*Carolyn L. Whitton*)

Mechanization Makes Limited Progress

The year 1976 began with claims of large increases in production of most of the major agricultural machines. However, by midyear both the number of claims and the size of reported increases had diminished. At year's end, there was no report of an annual increase in agricultural machinery production. Thus, the year 1976 appears to have been one of, at best, small increases in agricultural machinery production and limited progress toward the target of basic mechanization by 1980.

In 1966, responsibility for production of more than 800 types of agricultural machinery was decentralized from the national to the provincial level.⁶ Since then, the policy has been to widen distribution of and strengthen local control over these industries. The aim is to increase investment in total machinery production, enabling it to maintain a larger rate of growth than would have been possible with only limited central investments. As a result, distribution of agricultural industries has become more widespread. It was reported in 1976 that 28 of the 29 provincial-level units can now produce hand-tractors, while 24 of these can produce larger tractors and more than 20 can also produce engines.

The addition of tractor and engine parts and accessories to the types of equipment that receive production priority in the PRC reflects the increased emphasis in recent years on developing agricultural enterprises at even more local administrative levels. Now, all of the counties reportedly have farm tool facilities. Between 96 and 97 percent of them are also reported to have agricultural machine manufacture and repair enterprises, a minute increase over 1975. In 1976, there was also a large increase reported in the number of “industrial” enterprises of all types at and below the commune level.

The PRC's mechanization program continues to also put priority on tractors, hand-tractors, internal combustion engines, and irrigation and drainage

⁶Recent reports suggest that now 1,300 of a total of 1,800 kinds of agricultural machines are produced by enterprises under the control of administration at and below the provincial level.

Table 6--Totals of various water facilities and equipment, People's Republic of China, 1949, 1965, and 1972-76 1/

Year	Irrigation : and drainage : equipment :	Large and : medium : reservoirs :	Total : reservoirs :	Pump : wells :	Small and : medium : power stations :
	Million horsepower	Number	Number	Millions	Thousands
1949	2/.88- 1.18	2/10-20	NA	NA	0
1965	2/7.5 -10.0	2/1,400	2/14,000	2/.1	2/5.6-6.0
1972	NA	NA	NA	2/.7	NA
1973	30	2,000	NA	1.2	NA
1974	30	2,000	NA	1.3	50
1975	40	2,000	70,000	1.7	60+
1976	NA	NA	70,000	1.8	62+
1977					

NA = Not available.

1/ See The Agricultural Situation in the People's Republic of China, Review of 1975 and Outlook for 1976, Foreign Agricultural Economic Report No. 124, Economic Research Service, USDA, Aug. 1976, p. 26, for definitions of sizes of water equipment.

2/ Derived from reported increases.

Table 7--Regional shares of total irrigated area, People's Republic of China, by rank, 1949, 1957, 1975, and 1976

Region	1949	1957	1975	1976	1977			
	Rank: Share of total	Rank: share of total	Rank: share of total	Rank: share of total	Rank: share of total			
	Percent	Percent	Percent	Percent	Percent			
Central.....	1	29.00	2	18.50	3	13.80	3	13.30
Eastern.....	2	26.00	2	18.50	2	15.50	2	16.20
Southeastern.....	3	12.00	5	12.75	5	12.20	6	10.70
Southwestern.....	6	8.00	4	13.00	4	13.30	4	12.40
Northwestern.....	3	12.00	5	12.75	6	11.30	5	11.00
Northern.....	5	11.00	1	21.75	1	25.60	1	28.00
Northeastern.....	7	1.00	7	3.00	7	8.30	7	8.40

Sources: For 1949, Galenson and others (eds.), Provincial Agricultural Statistics, Committee on the Economy of China, Social Science Research Council, Ithaca, N.Y., 1969, pgs. 1-236; For 1957, Central Intelligence Agency, The Program for Water Conservation in Communist China, May 1962, pp. 38-39, and Galenson and others, op. cit. For 1975, data are based on revised data from The Agricultural Situation in the People's Republic of China and Other Communist Asian Countries, Review of 1975 and Outlook for 1976, Foreign Agricultural Economic Report No. 124, Economic Research Service, USDA, Aug. 1976. Percentages are derived from table 8, cols. 1, 2, 5, 6, of the present report.

Table 8--Total area irrigated, People's Republic of China, 1949, 1957, and 1973-76

Administrative Unit	1/1949	2/1957	1973	1974	1975	1976	1977
Thousand hectares							
PRC Total	15,995	34,320-35,527			3/min=37,489 max=44,600	3/min=40,895 max=47,119	
Heilungkiang	54	320-300	783-833	933	1,130-1,600	1,310-1,780	
Kirin	86	280-324	NA	600	680-714	788-814	
Liaoning	60	460-486	NA	1,333	NA	NA	
Total Northeastern 4/	200	1,060-1,110			3,143-3,647	3,423-3,927	
Honan	480	2,810-2,860	NA	3,000-3,200	3,300-3,530	3,500-3,730	
Hopeh	820	1,760-1,800	NA	3,300	3,560-3,690	6/3,733-3,863	
Peking	5/	5/	257	300	338	347-364	
Shansi	245	750-753	688	931	NA	NA	
Shantung	235	1,990-2,460	2,907-3,207	1/3,200-3,530	2,600-3,300	3,530	
Tientsin	5/	5/	35	NA	6/64	NA	
Total Northern	1,780	7,310-7,870			9,831-11,151	12,105-12,482	
Anhui	1,130	2,280-2,260	8/3,000	6/530	NA	6/796	
Chekiang	1,300	1,590-1,600	2/1,440	1,060	7/1,325	1,514	
Kiangsu	10/1,820	2,560-2,553	NA	2/3,300	7/2,666	3,400	
Shanghai	5/	5/	7/331-356	7/331-356	7/331-356	NA	
Total Eastern	4,250	6,430-6,410			4,852-8,096	6,041-8,270	
Hunan	NA	11/2,660-2,778	2,310	1,236	1,260	NA	
Hupei	NA	1,930-1,860	2/2,400	NA	NA	2,600	
Kiangsi	1,114	1,720-1,930	12/1,460	NA	NA	NA	
Total Central	13/(4,680)	6,310-6,570			5,120-6,170	5,320-6,370	
Fukien	570	990-986	12/1,080	NA	7/975-1,125	999-1,149	
Kwangsi	472	1,330-1,664	2/1,300	1,056-1,064	1,130	1,185	
Kwangtung	10/860	2,600-1,393	8/2,900	2,530	2,578	1,800-3,088	
Total Southeastern	1,900	4,920-4,040			4,683-5,325	3,984-5,537	
Kweichow	190	610-529	8/800	NA	NA	NA	
Szechwan	730	2,560-3,690	12/3,600	NA	NA	NA	
Tibet	NA	NA	141-152	7/161-172	7/167-178	177-188	
Yunnan	295	770-820	12/860	NA	NA	NA	
Total Southwestern 4/	1,220	3,940-5,040			5,427-5,438	5,437-5,448	
Inner Mongolia	285	800-804	151	191	283	328	
Kansu	320	1,060-1,200	12/400	NA	NA	6/167	
Ningsia	5/	5/	9/230	6/60	6/60	NA	
Shensi	235	650-648	2/1,300	1,093	1,130	1,203	
Sinkiang	1,075	1,710-1,718	NA	666	2/2,400	2,667	
Tsinghai	50	130-111	137	147	160	NA	
Total Northwestern 4/	1,965	4,350-4,480			4,433-4,773	4,585-5,085	

NA = Not available. All data from PRC sources unless otherwise specified. The definition of irrigated area was revised in the 1960's.

1/ Galenson and others (eds.), Provincial Agricultural Statistics, Committee on the Economy of China, Social Science Research Council, Ithaca, N.Y., 1969.

2/ Central Intelligence Agency, The Program For Water Conservation in Communist China, May 1962, pp. 38-39 and Galenson and others, op. cit.

3/ National and regional minimum and maximum totals are the sums of the most recent provincial figures available for the periods 1973-75 and 1973-76. The 1975 totals are revised data from The Agricultural Situation in the People's Republic of China and Other Communist Asian Countries, Review of 1975 and Outlook for 1976, Foreign Agricultural Economic Report No. 124, Economic Research Service, USDA, Aug. 1976. The minimum national and regional totals for 1957 are the sums of the data in left-hand column from the first source listed in footnote 2 while the maximum totals for that year are sums of the right-hand column from the second source.

4/ Excluding grassland irrigated.

5/ For these years, Peking and Tientsin Municipalities are included in the total for Hopeh Province, Shanghai Municipality is in the total for Kiangsu Province, and Ningsia Hui Autonomous Region is in the total for Kansu Province. Totals for other provinces have not been adjusted for the subsequent boundary shifts; thus are not exactly comparable to the 1970's data.

6/ Partial.

7/ Derived from percentages of estimated cultivated area.

8/ Wiens, Thomas B. Agricultural Statistics in the PRC, Mathematica Inc., Joint Cmte. on Contemporary China, 17-18 Jan. 75, p. 141-42.

9/ Estimates for year listed from unpublished research of J. Nickum at U. C. Berkley.

10/ 1950.

11/ 1956.

12/ Estimates provided by J. Nickum for years prior to 1973.

13/ Estimated.

equipment; and processing, plowing, threshing, and transplanting operations. The agricultural operations and equipment emphasized still vary according to regional needs. However, the wider variety of operations—including harvesting, sowing, and transportation operations—claimed to be mechanized or semimechanized in the North and East Regions suggests the possibility that these regions may have so far achieved greater success with mechanization than other regions. There were claims in 1976 of an increase in total tractor and hand-tractor production. But because no claims were made of production increases for other agricultural machinery, it appears that 1976 mechanization performance was not outstanding.

The Second Tachai Conference in December 1976 reiterated the targets and rural development steps announced at the previous year's conference.⁷ To emphasize the importance of the mechanization goal, major speeches outlining previous mechanization targets and procedures during 1955-56 and 1966-71 were resurrected for mass study and emulation in 1977. Thus, extra efforts are now being made in preparation for 1977 mechanization increases, and the PRC still expects to meet the target of basic agricultural mechanization by 1980. It remains to be seen whether they can do so, even with a flexible definition of basic mechanization. Their effort will partially depend on their attitude toward imports of agricultural machinery, its components, and resource inputs—such as steel.

Despite increased efforts to mechanize, prospects of increased PRC imports of agricultural machinery do not yet appear to be much better than in 1976. Imports of agricultural machinery and its components will still depend on three criteria: a favorable total trade balance; the extent of domestic competition with other industries for inputs; or the availability of an unusually successful new technology which would significantly increase crop output or yields immediately and which could be introduced more quickly by importing and copying than by domestic design and production. Small exports of agricultural equipment, principally in aid/trade programs to developing countries, are likely to continue as domestic demand allows. (*Carolyn L. Whitton*)

Fertilizer Use Static

Chinese agricultural practices emphasize both organic and chemical fertilizers. Organic fertilizers still supply the greater share of total nutrients used. However, the bulk of increased nutrient appli-

cation in recent years has come from rapidly rising use of chemical fertilizers. This has been achieved by both high import levels (China has been the world's largest importer of nitrogen fertilizers) and by rapidly growing domestic fertilizer production. By 1975, domestic chemical fertilizer consumption had reached an estimated 70 kg. of nutrient per hectare of cultivated area. However, in 1976, a reduced growth rate in domestic production and lower imports temporarily halted growth of domestic consumption of chemical fertilizer.

The disruption which affected much of the industrial and transportation sectors during 1976 did not spare the fertilizer industry. After reports of rapid progress in fertilizer production during the first few months of the year, no further national claims were made, which indicates that growth in domestic production was far below the estimated 20-percent increase of 1975. Capacity in the fertilizer industry, particularly that for nitrogen fertilizer, increased somewhat during 1976 as additional small-scale plants were built and others expanded. Additionally, at least 3 of the 13 large synthetic ammonia and urea plants (daily capacity of 1,000 tons of synthetic ammonia) purchased from the West began at least limited operation. A major problem during the year appears to have been operation of many plants at levels well below capacity.

No 1976 production estimate has been made because of the lack of information. But total production for the year was probably up slightly over the estimated 6.1 million tons (total nutrient weight) produced in 1975.

Along with the slowdown in the growth rate of production, fertilizer imports were down in 1976. This resulted both from foreign exchange pressures and also from political uncertainties. Imports of nitrogen fertilizer from Japan, China's largest supplier, were off significantly during the first half of the year and ended during the second half as scheduled contract talks were postponed from summer until the end of the year. Consequently, imports from Japan were down to about 300,000 tons (nutrient weight) from about 700,000 tons in 1975. Increased purchases from other countries, particularly in Eastern Europe, did not fully replace reduced purchases from Japan, and total nitrogen imports for the year were below the 1.1 million tons imported in 1975. Imports of manufactured phosphate fertilizer and phosphate rock were negligible in 1976, and imports of potassium fertilizer, which had supplied about a third of domestic consumption in 1975, ended.

Given a modest increase in production and a decline in imports, 1976 total consumption appears to have been no higher than and quite possibly somewhat below the 1975 level of 7.3 million tons (total nutrient weight).

Nitrogen fertilizer capacity will grow substan-

⁷See *The Agricultural Situation in the People's Republic of China and Other Communist Asian Countries, Review of 1975 and Outlook for 1976*, Foreign Agricultural Economic Report No. 124, Economic Research Service, USDA, pp. 12-24.

tially during the next several years as the rest of the imported plants are brought into production. These alone will add annual capacity of almost 3 million tons of nitrogen. The critical question, however, is the rate at which capacity will be utilized. If substantial problems are encountered in getting the new plants into full production, growth of production will be slowed. Recent fertilizer purchases for 1977 delivery may indicate a cautious PRC assessment of short-term production prospects.

TOTAL TRADE DROPS

China's foreign trade in 1976 was marked by caution and retrenchment. Total imports and imports of major agricultural products were down for the year; initial indications point to a decline in total imports of more than 10 percent. Total exports appear to have been at about 1975 levels.

The drop in imports reflects strenuous efforts to eliminate a hard currency trade deficit which had risen during the fourth 5-year plan period (1971-75) to a cumulative level of nearly \$2.5 billion by the end of 1975 (table 9). This problem of the deficit was compounded by high repayment obligations during the year on short and medium term debt incurred between 1973 and 1975. The political campaign against former Vice-Premier Teng Hsiao-ping, in which economic policy, foreign trade, and the question of dependence on foreign imports and foreign markets became an important issue, lasted through much of the year and was also a factor holding down new foreign trade initiatives and to some extent the level of imports. As a result of the fall in imports, China ran a surplus in hard currency trade in 1976 for the first time since 1972.

The increase in exports during the year was limited by both a slower than expected recovery in China's major export markets and by domestic political questions. In particular, China's policy of expanding petroleum exports was sharply challenged during the campaign against Teng. As a result of this campaign and reduced Japanese demand, growth of petroleum exports—the fastest growing export category in 1974 and 1975—leveled off in 1976. Petroleum sales to Japan, China's major buyer, were down by one-fourth, and total petroleum exports were estimated to be about 9 million tons, 10 percent below the 1975 level. The reduction in sales to Japan cost China about \$175 million in lost foreign exchange earnings and was an important factor holding down the growth of total exports.

By the end of 1976, PRC statements were again stressing the important role of foreign trade in development of the economy as well as reaffirming the correctness of raw material exports, in particu-

lar petroleum. The resolution of the debate over general foreign trade policy, coupled with success in 1976 in eliminating the trade deficit and the passing of the peak in repayment obligations, suggests that foreign trade levels can be expected to rise modestly during 1977.

1976 Agricultural Trade Down

Agricultural commodities are an important part of PRC foreign trade. During the 1970's, agricultural commodities have consistently accounted for about 40 percent of total PRC exports and, at least until 1975, have averaged about 30 percent of total imports (table 9). Leading agricultural export items in recent years have been rice, live animals, meat and animal products, fruits and vegetables, and silk. China's largest market for agricultural exports has consistently been Hong Kong, accounting for roughly one-fourth of the total. Nearly 30 percent of agricultural exports go to other markets in the developing countries and approximately one-third go to the developed countries. Less than 20 percent go to Communist countries.

On the import side, grains have typically accounted for nearly half of the total value of agricultural imports. Other consistently important items have been sugar, rubber, and cotton. Reflecting the predominance of grain, over half of PRC agricultural imports are from the developed countries. The Communist bloc typically supplies less than 10 percent of total agricultural imports. In 1975, when payments pressures forced import curtailment, a disproportionate share of the cuts were made in the area of agricultural products. As a result, agricultural imports fell to less than 20 percent of total imports during the year, with grain, soybean, and cotton imports down sharply.

Much of the 1975 agricultural import pattern was repeated in 1976 as efforts to curtail imports focused heavily on agricultural products, particularly grains. Total grain imports, nearly all wheat, fell to 2.1 million tons in 1976, nearly 40 percent below the 3.3 million tons imported in 1975 and the lowest level since the grain import program began

Table 9--Foreign trade indicators, People's Republic of China, 1971-76

Item	1971	1972	1973	1974	1975	1976
Million U.S. dollars						
PRC: 1/ Total exports	2,415	3,085	4,960	6,570	6,930	6/6,900
Agricultural exports 2/	980	1,290	2,140	2,605	2,740	NA
Total imports	2,305	2,835	5,130	7,380	7,385	6/6,000
Agricultural imports 2/	485	730	1,680	2,370	1,405	NA
Overall trade balance	110	250	(170)	(810)	(455)	6/900
Hard currency trade balance 3/	25	45	(460)	(1,230)	(835)	6/700
U.S. - PRC trade 4/ Exports to PRC	--	63.5	739.7	818.7	303.6	135.2
Agricultural exports to PRC 5/	--	61.3	625.6	664.3	79.7	--
Imports from PRC	5.0	32.4	64.9	114.7	158.3	201.9
Agricultural imports from PRC	4.0	16.4	21.6	26.4	28.2	55.0

NA = Not available. () = negative number.

-- = None or negligible.

1/ Exports f.o.b., imports c.i.f. Derived from partner-country trade data and estimates. Data are taken or derived from Central Intelligence Agency, People's Republic of China: International Trade Handbook, various issues.

2/ Rough estimates intended only to provide an indication of orders of magnitude. Agricultural and nonagricultural commodities could not be completely separated.

3/ Trade with non-Communist countries is used as a proxy for hard currency trade. This introduces some error as some of this trade is on a barter basis and some trade with Communist countries may be settled in hard currencies.

4/ See table 13 for source and breakdown by commodity.

5/ Includes the estimated value of U.S. agricultural goods transshipped through Canada.

6/ Preliminary U.S. Government estimate.

in 1961 (table 10). Rising grain production between 1973 and 1975 made some curtailment possible, although the low import levels in both 1975 and 1976, coupled with possible problems in grain procurement in 1976, may have resulted in some stock drawdowns.

Canada and Australia were the only suppliers of wheat during 1976, shipping an estimated 1.1 and 0.9 million tons, respectively. The purchases from Australia, contracted in early 1976, raised that country's total shipments under a 3-year wheat agreement (1974-76) to about 3.6 million tons, 0.5 million below the minimum of 4.1 million called for in the agreement (table 11). Canadian deliveries during 1976 raised total deliveries during 1974-76 to 4.8 million tons. However, 1 million tons of these purchases were supplementary to a 3-year agreement (1974-76) with Canada calling for a minimal purchase of 4.9 million tons. So, by the end of 1976, deliveries from Canada were about a million tons less than the minimum amount called for in the agreement. A 3-year agreement with Argentina, which was to have covered 1974-76, was never finalized and appears to have been dropped with the mutual consent of both parties (table 11).

In addition to wheat, the PRC imported about 140,000 tons of rice in 1976, the first such imports since the 1960's.

China's 1976 rice exports were well below 1975 levels, falling to an estimated 1.0 million tons from 1.5 million tons in 1975 (excluding deliveries of unknown amounts to other Communist Asian countries). The reduced level of rice exports reflects a combination of unfavorable price trends during the year, reduced demand and increased competition from other suppliers in major markets, and possibly also reduced rice export supplies stemming from stagnant production levels between 1974 and 1976.

China's cotton imports during the 1975/76 marketing year (beginning August 1, 1975) remained at the same level as during the 1974/75 year—about 150,000 tons. Moreover, small exports of cotton, mainly to Hong Kong, but also to Japan, continued through much of the year. This level of imports was well below the average imports of 405,000 tons in 1972/73 and 1973/74 (table 12). The continued low level of imports, combined with declining cotton production in 1974 and 1975, must have resulted in some stock drawdowns and some tightness in supplies. Pressures on stocks probably would have been worse had it not been for both the apparent failure of PRC cotton textile exports to recover appreciably from the depressed levels of the previous year and also possible disruptions of textile production caused by the political turmoil of 1976.

An important development during 1976 was a decline in China's soybean exports (table 10).

Export supplies were very tight or unavailable, even to China's long-term customers. For example, Japan, China's largest market, was only able to buy 133,000 tons of soybeans, down from 240,000 in 1975. Finland, a long-term purchaser of about 30,000 tons per year, was apparently unable to purchase any in 1976. Aggregate 1975 and 1976 soybean export figures are unavailable. But it appears that PRC soybean exports dropped from more than 300,000 tons in 1975 to less than 200,000 tons in 1976. Soybean imports during 1976 totaled 25,000 tons, all from Brazil. A small amount of soybean oil was also imported. Since the late 1960's, PRC soybean trade has shown a downward trend and greater year-to-year variability in net soybean exports, apparently reflecting greater consumption pressure on domestic production.

The PRC expanded its sugar imports noticeably in 1976, in part diversifying imports away from Cuba, its regular supplier, and in part responding to significantly lower world sugar prices in 1976. During 1973 and 1974, China entered into tentative long-term agreements with Australia and Brazil calling for the purchase of 300,000 tons and 150-200,000 tons of sugar per year, respectively. Imports from these countries did not reach these levels in either 1974 or 1975. In 1975, China is estimated to have imported only 235,000 tons of sugar. However, total imports in 1976 were up sharply, with Australia supplying 200,000 tons. Thailand provided 55,000 tons. Figures for other exporting countries are not yet available, but it appears that 1976 sugar imports may have been approximately 500-600,000 tons.

Insufficient evidence is available to assess China's 1976 trade in other agricultural products. But exports of live animals and meat to Hong Kong, China's major market for these products, appear to have been at about the same level as in 1975. China's raw silk exports to Japan, the PRC's largest buyer, were virtually unchanged from 1975 levels.

U.S.—PRC Trade Marked by Low U.S. Exports

Total U.S. exports to China were down sharply in 1976, falling 55 percent to \$135.4 million, the lowest level since 1973. U.S. agricultural exports to China for the year were negligible. The largest single agricultural export item in 1976 was onion seed, valued at \$40,000. Total agricultural exports were only \$44,000 (table 13). The low level of agricultural exports in both 1975 and 1976 reflects the temporary decline in total PRC agricultural imports during these years and also our present role as a residual supplier to the PRC.

The most noticeable change in U.S.-PRC trade in 1976 was the rise in total U.S. imports from China. U.S. imports rose by 28 percent to \$201.9

Table 10--Trade in major agricultural commodities,
People's Republic of China, 1971-76

Item	: 1971	: 1972	: 1973	: 1974	: 1975	: 1976 <u>1/</u>
	:	:	:	:	:	:
	:	:	:	:	:	:
	:	:	:	:	:	:
	:	:	:	:	:	:
	:	:	:	:	:	:
	:	:	:	:	:	:
Total grain imports	3,128	4,642	7,645	6,790	3,446	2,140
From:	:	:	:	:	:	:
Argentina	107	14	4/158	735	172	--
Australia	33	--	768	1,318	1,352	900
Canada	2,988	3,687	2,398	1,772	1,922	1,100
United States <u>2/</u>	--	941	4,315	2,759	--	--
Other	--	--	6	206	--	5/140
Wheat imports	3,021	4,252	5,987	5,346	3,339	2,000
From:	:	:	:	:	:	:
Argentina	--	--	--	145	65	--
Australia	33	--	768	1,318	1,352	900
Canada	2,988	3,687	2,398	1,772	1,922	1,100
United States <u>2/</u>	--	565	2,815	1,905	--	--
Other	--	--	6	206	--	--
Corn imports	107	390	1,626	1,444	107	--
From:	:	:	:	:	:	:
Argentina	107	14	126	590	107	--
United States <u>2/</u>	--	376	1,500	854	--	--
Rice exports	924	899	2,142	1,983	1,440	1,000
Soybean exports	460	370	310	<u>1/340</u>	<u>1/330</u>	<u>1/200</u>
Soybean imports	--	2	255	619	36	25
Sugar imports <u>3/</u>	464	749	736	411	235	NA

NA = Not available.

-- = None or negligible.

1/ Preliminary.

2/ Direct exports plus transshipments through Canada. See table 13.

3/ Raw value.

4/ Includes 32 thousand tons of sorghum.

5/ All rice.

Sources: Partner country trade statistics.

FAS/ERS estimates.

FAO, "The Rice Situation in the People's Republic of China,"

CCP:RI 77/C.R.S. 2, March 1977.

International Sugar Organization, Sugar Yearbook, 1975.

Table 11--Grain contracts between the People's Republic of China and Argentina, Australia, and Canada, 1973-77 ^{1/}

Country	Date	Amount	Type	For shipment during	Remarks
		1,000			
		metric tons			
Argentina	Dec. 1973	3,000	Wheat and corn	Calendar 1974-76	The first long-term agreement since 1966. Apparently never formally ratified, called for mainly corn in 1974 and 50 percent each of wheat and corn in 1975 and 1976.
	Dec. 1973	200	Corn	Jan.-Mar. 1974	First contract under long-term agreement.
	May 1974	500	Corn	June-Dec. 1974	Second and last contract under long-term agreement.
		150	Wheat	June-Aug. 1974	
	Dec. 1976	200	Wheat	Feb.-June 1977	
	Jan. 1977	100	Wheat	Feb.-Apr. 1977	Private sale.
Australia	Oct. 1973	4,100 to 4,700	Wheat	Calendar 1974-76	Called for 1.1 million tons in 1974 and 1.5 to 1.8 million tons in 1975 and 1976. Specific quantities and schedules to be set in separate contracts.
	Oct. 1973	600	Wheat	Jan.-June 1974	First contract under 3-year agreement.
		500	Wheat	July-Dec. 1974	Specifics of July-December portion negotiated in June 1974. ^{2/}
	July 1974	500	Wheat	July-Dec. 1974	Supplementary to amounts in long-term agreements.
	Jan. 1975	1,000	Wheat	Apr. 1975-Mar. 1976	Second contract under 3-year agreement. ^{2/}
	Jan. 1976	700	Wheat	Dec. 1975-Nov. 1976	Third contract under 3-year agreement. July 1974 supplementary purchase now included under 3-year agreement quantities.
	Nov. 1976	500	Wheat	Feb.-June 1977	Presumably the final contract under the 3-year agreement.
	March 1977	2,000	Wheat	June 1977-Jan. 1978	
Canada	Oct. 1973	4,900-6,100	Wheat	Calendar 1974-76	Agreement provides for quantities and delivery schedules to be set in separate commercial sales contracts. ^{3/}
	Oct. 1973	1,016	Wheat	Jan.-June 1974	First contract under agreement.
	June 1974	2,030	Wheat	July-Dec. 1974	Half to be counted as part of 3-year agreement quantities, half supplementary.
	Apr. 1975	1,140	Wheat	May 1975-Mar. 1976	Third contract under agreement.
	Feb. 1976	965	Wheat	Apr.-Dec. 1976	Fourth contract under agreement.
	Dec. 1976	762	Wheat	Feb.-June 1977	Final contract under 3-year agreement. ^{3/}
	Jan. 1977	1,524	Wheat	March-Dec. 1977	^{3/}

^{1/} Contract data for earlier years can be found in The Agricultural Situation in Communist Areas: Review of 1970 and Outlook for 1971, ERS-Foreign 314, Apr. 1971, pp. 35-36; The Agricultural Situation in the People's Republic of China, Review of 1973 and Outlook for 1974, ERS-Foreign 362, May 1974, pp. 13-14; and The Agricultural Situation in the People's Republic of China, Review of 1975 and Outlook for 1976, Foreign Agricultural Economic Report No. 124, Aug. 1976, p. 37; all published by the Economic Research Service, USDA. The latter two sources also contain a breakdown of purchases from the United States between 1972 and 1975.

^{2/} Payment and interest within 12 months of shipment.

^{3/} Twenty-five percent cash when loaded, balance plus interest within 18 months.

Table 12--Cotton imports, People's Republic of China, by country of origin, 1971-75 1/

Country of origin	Year beginning August 1				
	1971	1972	1973	1974	1975
	<u>1,000 metric tons</u>				
Brazil	--	29.2	7.6	--	7.6
Columbia	--	0.9	--	--	4.8
Egypt	17.0	13.9	7.4	8.5	7.4
El Salvador	--	--	0.2	--	8.7
Iran <u>2/</u>	8.1	44.0	2.4	5.4	<u>4/</u> 10.7
Kenya <u>3/</u>	2.6	3.9	4.4	0.4	--
Mexico	15.9	24.2	24.2	5.9	5.4
Morocco	2.2	5.4	1.1	--	--
Nicaragua	--	--	18.3	6.7	18.3
Pakistan	18.1	25.9	2.0	20.7	7.8
Sudan	37.2	41.8	33.3	<u>3/</u> 17.0	<u>3/</u> 19.4
Syria	15.0	16.3	28.3	8.1	46.8
Tanzania	15.5	30.0	41.8	1.1	<u>4/</u> 4.6
Turkey	14.2	50.9	12.8	--	3.0
Uganda	5.2	7.0	3.3	2.2	2.6
United States	--	127.4	195.5	66.8	1.7
Other	--	4.3	3.0	1.1	4.5
Total	150.9	425.2	385.6	143.9	153.3

Note: -- means none or negligible.

1/ Marketing years beginning August 1 unless noted otherwise. Data as reported by exporting countries.

2/ Year beginning July 23.

3/ Calendar year.

4/ August - December only.

Source: U.S. Department of Agriculture, Foreign Agricultural Service, Foreign Agriculture Circular FC 1-77.

Table 13--U.S. agricultural exports to the People's Republic of China, by calendar and fiscal years, 1972-76 1/

[illegible]

Note: -- means none or negligible.

1/ Fiscal year refers to the old fiscal year, July 1-June 30. Exports include transshipments of agricultural products through Canada. For a breakdown by direct shipments and transshipments, see The Agricultural Situation in the People's Republic of China and other Communist Asian Countries, Review of 1975 and Outlook for 1976, Foreign Agricultural Economic Report No. 124, Economic Research Service, USDA, Aug., 1976, pp. 38-39.

2/ Numbers in thousands.

3/ Includes small amounts of baby chicks, peanuts, beans, waxes, and vegetable seeds.

Source: U.S. Bureau of the Census, U.S. Agricultural Exports, various printouts, 1974-76. Agricultural Trade Statistical Report, Economic Research Service, USDA, various issues. U.S. Foreign

million, creating the first trade deficit with China since trade was resumed in the early 1970's. The bulk of the increase in imports was agricultural commodities. Between 1972 and 1975, U.S. agricultural imports from China increased about 20 percent per year. In 1976, however, agricultural imports from China nearly doubled, rising to \$55.0 million. The share of agricultural items in total imports from the PRC rose to 27 percent, up from 18 percent in 1975. Although providing only a small share of our total agricultural imports, the PRC is now the third largest Communist exporter of agricultural products to the United States, ranking behind only Poland and Yugoslavia.

U.S. agricultural imports from China continue to range across a broad range of commodity categories (table 14). In 1976, feathers and down imports rose to \$14.3 million, more than four times the 1975 level and 26 percent of total agricultural imports from the PRC. Bristles were the second largest import during the year. Sizable increases in 1976 were also registered in nuts, particularly cashew nuts, and silk, essential oils, tea, spices, and cashmere.

Trade Outlook Points to More Agricultural Imports

In the past several months, China's agricultural trade, particularly trade in grain, has changed dramatically from that of 1976. The most striking development has been in wheat imports. In November and December 1976, China contracted with Canada and Australia for a total of 1.265 million tons of wheat for delivery in the first half of 1977 (table 11). These purchases, the final ones under the long-term agreements with these countries, brought purchases during 1974-76 up to the minimum levels stipulated in the agreements, essentially extending the agreements 6 months into 1977. So far, no new long-term agreements have been negotiated. In addition to these purchases, 200,000 tons of wheat were contracted for with Argentina in December, also for delivery during the first half of 1977.

At the time of signing of these contracts, further purchases were not expected until late spring. By late January, however, China was back in the market and by early March had contracted for an additional 3.625 million tons of wheat, raising the amount purchased since November 1976 to 5.1 million tons (table 11). Additional purchases of several hundred thousand tons from Argentina have been rumored but not confirmed. Counting a small carryover on 1976 purchases from Canada and prorating purchases whose delivery schedule carries over into 1978, as of early March about 5 million tons of grain, all wheat, appeared to be scheduled for 1977 delivery.

These purchases are well above 1975 and 1976

purchases and about equal to the average level of grain imports between 1961 and 1975—5.1 million tons of grain, including 4.5 million tons of wheat. The rise in imports in 1977 reflects a combination of favorable world market prices and the probability that stocks may be down following 2 years of low import levels and apparent problems with procurement from the 1976 crop. In addition, the most recent purchases probably in part result from apprehension about the 1977 harvest, especially that of winter crops. Whether or not subsequent purchases are made will depend heavily on weather and crop developments as the year progresses.

Because of tight world supplies and high prices, cotton imports in 1977 are not expected to exceed 1976 levels despite an apparently tight supply situation in China. Important unknowns in the cotton import picture are the growth of Chinese textile exports in 1977 and the growth of synthetic fiber production.

The tight soybean and vegetable oil situation will have an impact on 1977 trade. Soybean exports are expected to continue at reduced levels and soybean imports will be up sharply. A purchase of 390,000 tons of optional-origin soybeans was registered in late March with the Office of the General Sales Manager of USDA. These are expected to come from Brazil, although the seller has the option of supplying U.S. soybeans. The entire 390,000 tons is scheduled for shipment between May and November of this year. China will consequently be a net soybean importer in 1977 for the first time since 1974 and only the second time since 1949. In addition to soybeans, purchases of 70,000 tons of soybean oil have been recently reported. Additional purchases of vegetable oils may be made during the year.

PRC sugar purchases have generated considerable interest in recent months as large purchases on world markets have been reported, most notably two purchases from the Philippines totaling 450,000 tons. However, not all of this amount is for 1977 delivery, and planned imports from other major suppliers, especially Cuba, are not known. Sugar imports in 1977 will apparently be up somewhat, but no firm conclusion about the size of the increase is possible at this time.

Prospects for U.S. sales of agricultural products during 1977 are uncertain. If Chinese grain imports rise substantially above current contracted levels, some sale of U.S. grain is possible. Some U.S. soybeans and soybean oil may move to China during the year. Sale of cotton for 1977 delivery is also possible. Given what is known about PRC purchases to date and world availabilities, China may need to purchase a limited amount of U.S. cotton if even the modest import levels of the past 2 years are to be reached. (*Frederic M. Surls*)

Prospects for PRC agriculture in 1977 appear uncertain after the disappointing performance of 1976. Unfavorable weather during winter and early spring has been threatening winter crops. In addition to the immediate weather problem, China also faces the more basic question of the future direction toward which the new leadership will steer China's politics and economy—and consequently agriculture.

Early Drought Now Eased

Below normal temperature occurred in all of China, particularly in North, East, and Central China in November and December 1976. But from January 1977 on, temperature turned normal to slightly above normal. In February and early March, drought conditions of varying degrees occurred in almost all of China's major agricultural provinces. Most critically affected were areas in North, East and Central China, where winter wheat and other winter crops were emerging from dormancy. Drought conditions were also reported in early rice areas in the South, notably in southern Kwangtung Province.

From January through March of last year, China was plagued by a shortage of precipitation and below-normal temperature in the North China Plain. But in that year, timely rainfall arrived in mid-April and May, and the PRC reaped record winter wheat and barley crops. Rapeseed and early rice crops, mostly in South and Central China, suffered damage from cold temperature and damp weather.

Since mid-March of this year, weather patterns have progressively improved. Light rain fell in late March in parts of the critical areas, and in April normal to above-normal precipitation occurred in more than 70 percent of crop-producing provinces. The early spring also contributed to faster plant growth in areas where moisture was adequate. Accumulated precipitation since September 1976 in the North China Plain, and in Northeast and South China is still below normal. Winter wheat would benefit from more rain in May. Spring sown crops in the Northeast and North, and the rice crop in South China will need more rain throughout the summer.

However, the serious drought that was reported in March has very much eased. New China News Agency on May 9 reported that the "most severe drought" since 1949 has been overcome, that virtually all early rice had been transplanted on a greater acreage than last year in the southern provinces including Kwangtung, the driest area in the South, and that, in China, sowing of maize,

sorghum, cotton, and other spring sown crops is about completed.

China's large labor force is an asset in dealing with the drought. An all-out effort to fight drought, called for by the State Council and provinces in March, plus China's past massive capital investment in irrigation facilities, should further help to limit the damage, though it is probable that the early harvested grain crops will be somewhat less than last year's record crop.

Political and Economic Situation More Stable

China's political and economic conditions will be more favorable for agriculture this year. Increasing and better agricultural inputs are expected to be available. Other positive factors include improved rural health care, transportation, communication, and weather information. With the new leadership striving for stability, unity, and economic growth, 1977 production activities are expected to be more concerted for reaching greater outputs in all economic sectors.

China's foreign trade will likely be more active than that in 1976. So far, the PRC has bought 5.1 million tons of wheat and 390,000 tons of soybeans. There are indications that PRC foreign trade levels will rise in 1977.

Basic Issues

In addition to the immediate threat posed by weather in 1977, China's agriculture faces an uncertain future and a broad range of basic economic questions. As a result of changing leadership, since October 1976 the PRC Government has been in the process of formulating its future political and economic course. At the Fourth National People's Congress (NPC) in January 1975, the late Premier Chou En-lai called for basic mechanization of agriculture by 1980, and development and modernization of agriculture, heavy industry, national defense, and science and education before the end of the century. Various policy statements by the new leadership and official organs have indicated the intention to carry out this policy. A host of issues relating to agriculture emerge, most of which are linked with each other.

Economic Priority

The first critical issue is the priority given to agriculture relative to that given to other sectors of the Chinese economy. The priority order of agriculture, light industry, and heavy industry has been China's key policy since the early 1960's. In view of the necessity of feeding the large population,

agriculture will likely continue to be emphasized. However, if the economic policy set forth in the Fourth NPC is to be carried out, more attention would have to be paid to heavy industry, national defense, and other economic sectors. This raises the question of competition between agriculture and other sectors for capital investment.

Agricultural Productivity

A partial answer to the above question hinges on what China will do to increase productivity in the agricultural sector. In the past, the PRC has invested heavily in water management, irrigation facilities, and chemical fertilizer plants. Great efforts have also been made in developing rural industry to support agriculture and in organizing an agricultural extension network. These efforts have been important in reducing the adverse effects of unfavorable weather and enabling food production to keep up with population growth.

However, Chinese agriculture remains labor intensive. Its productivity has not increased at a rate sufficient to generate surpluses for other economic sectors because of the low level of modern technology and the lack of basic agricultural research. This raises the question of how China will elevate the low technological level in the short-run and develop basic research structure in the longrun. The former rests in part on whether China will continue to rely almost exclusively on domestic technological developments or turn to increased purchases of modern technology from the West, as when 13 large nitrogenous fertilizer plants were procured in 1973 and 1974.

The longer run question of developing basic research is a matter of whether China will revamp the basic concept of specialist vs. generalist, the education system, particularly at the college and graduate level, and the priority given to basic research. Basic research for raising productivity involves not only the natural sciences and increasing the physical output, but also basic economic research in dealing with the most efficient use of resources given the level of technology.

Agricultural Trade

Closely tied to the above issue is the question of China's foreign trade. If China opts for obtaining Western technology to raise agricultural productivity, what would be the impact on the PRC's agricultural imports and exports? Import items to raise agricultural productivity could include imports such as animal breeding stock, seeds, insecticide and pesticide plants, and fertilizer plants. Eventually, technological know-how on large-scale feeding of livestock and poultry, and on processing of both animal and plant products, may also be imported.

The possible effect on PRC grain and feed imports is difficult to determine. Since 1961, China has imported an annual average of about 5 million tons of food grains. In the long-term, a rapid increase in agricultural productivity would result in lower food grain imports. But whether China will continue to import more grain than the past average depends largely on whether the basic economic policy of self-reliance is continued, on the growth rate of population in relation to that of total food production, on the growth rate in demand for higher quality food items, and so forth. It also depends on the degree of resource shift among various agricultural products. The amount of imports will also depend on balance-of-payment constraints and the priority given to agricultural imports. Also, foreign exchange pressure may generate increased efforts to raise agricultural exports. While agricultural items will not be of major proportion in total exports, efforts will likely be made to gear the agricultural sector for more exports. Rice and livestock will likely continue to be major items for export and increased efforts to expand exports of other agricultural products—for example, fruits and vegetables—can be expected. Textile products are another likely item for increased export.

Consumption of Agricultural Products

An interesting issue will emerge if China's economic policy shifts toward using more material incentives to induce higher productivity in both nonagricultural and agricultural sectors. Especially since the Cultural Revolution (1966-69), non-material incentives have been the most strongly emphasized. Various political campaigns, aimed directly or indirectly against those favoring more reliance on material incentives, have been conducted. Since Chairman Hua assumed leadership, there have been indications that raising wage rates for industrial workers may be in the offing. If so, there is the question of the impact on agricultural production and trade if higher incomes raise the per capita demand for rationed and unrationed agricultural products. The most basic agricultural products, such as grains, edible oil, and cloth, are rationed.

Over time, the per capita demand for food grains may increase at a decreasing rate, and required grain imports for human consumption may not vary much from the annual average of 5 million tons. However, it is a different story with edible oil and cloth. Comparing China with most of the developing or centrally planned countries, the Chinese rations for these two items are low. The present ration for oil is 8 ounces per person per month; increasing it to 9 ounces would require a 12.5 percent increase in edible oil production. The

present ration for cloth is 4 meters per person per year; increasing it to 5 meters would require a 25-percent increase in production. This would mean an increase in demand of 300,000 tons of oil and 900 million meters of cloth, assuming a population of 900 million. For oil, either areas for grain crops might be shifted into more oilseed crop acreage or the amount of edible oil imported might be greatly increased. In 1976, PRC edible oil imports were minimal. For cloth, cotton production in 1976 was estimated at around 2.35 million tons, and cotton acreage at about 4.9 million hectares. An increase of 25 percent in the cloth ration would require either a rise of at least 600,000 tons (2.75 million bales) in production or in imports, or a large rise in synthetic fiber production.

As for nonrationed items, products of meat ani-

mals, mostly pork and poultry, would likely be the items for increasing consumption. Currently, information on per capita and total meat consumption is nonexistent. However, it can be surmised that a rapid rise in meat production would require, first, the technology to feed meat animals on a large scale, and second, an increase in the supply of feed grains. Both of these requirements would most likely be met by imports in the short run.

It is not clear at this time just how China's leaders will decide these matters. Nonetheless, these issues are crucial to the ability of Chinese agriculture to feed the population and provide for other sectors of the economy, and, consequently, to China's striving for membership by the end of this century in the club of world economic superpowers. (*Charles Y. Liu*)

APPENDIX TABLES

Appendix table 1--Claim of total grain production, People's Republic of China, by province, municipality, and autonomous regions, 1975 and 1976 1/

[illegible]

See next page for footnotes.

- 1/ Data compiled from local and national news services.
- 2/ Figures in parentheses are claimed percentage increases.
- 3/ Since no report was given, it is assumed that the 1975 grain harvest did not equal that of 1974 and that the harvest in 1976 did not equal that in 1975.
- 4/ Information available to ERS regarding the 1975 grain harvest for Honan Province and for the Inner Mongolian Autonomous Region does not substantiate the information quoted by one other source which shows a bumper harvest for Honan Province and a 10-percent increase for the Inner Mongolian Autonomous Region.
- 5/ An increase of 850,000 tons of grain was claimed for Liaoning, an increase of nearly 10 percent over 1974.
- 6/ Total grain production on irrigated land increased 10 percent over 1974. The proportion of irrigated land to total cropland in Ningsia-Hui in 1975 was 25 percent (about 60,000 hectares) of the total cultivated area. It is assumed that total grain production probably decreased slightly.
- 7/ Yunnan Province initially reported increases in total farm output, which was shown to have exceeded that for 1974 by 10 percent in an earlier report. Later reports did not mention the grain harvest. An early report also gave a considerable increase in farm output for Kiangsu Province, but subsequent reports did not mention the grain harvest.
- 8/ Apparently, these increases were very small, probably less than 5-percent.
- 9/ Kiangsi claimed a relatively good harvest, Kirin claimed a rich harvest, and Kansu claimed to have overfilled state plans. There was no comparison with previous years, however, to justify any higher ranking.
- 10/ This preharvest estimate was not subsequently updated, nor was it cited nationally, as were harvests for other provinces.
- 11/ Vice Premier Chen Yung-Kuei told the Second National Tachai Conference that these province level units had suffered serious disruptions in the past few years.

Appendix table 2--Area, yield, and production of total grains, People's Republic of China, 1949-76 1/

Year	Total grain				Rice				Wheat				Miscellaneous grains 2/				Tubers 3/			
	Area		Pro- duction		Area	Yield	Pro- duction	Area	Yield	Pro- duction	Area	Yield	Pro- duction	Area	Yield	Pro- duction				
	Million hectares	Kg./ha.	Million tons	Million hectares													Million hectares	Million hectares	Million hectares	Million hectares
1949	101.6	1,064	4/108.1	25.7	1,891	48.6	21.5	642	13.8	47.4	755	35.8	7.0	1,400	9.8					
1950	104.8	1,190	124.7	26.1	2,111	55.1	22.8	636	14.5	48.2	866	42.7	7.7	1,610	12.4					
1951	107.0	1,262	135.0	26.9	2,250	60.6	23.1	745	17.2	48.7	887	43.2	8.3	1,687	14.0					
1952	112.3	1,375	154.4	28.4	2,408	68.4	25.6	739	18.1	50.4	1,022	51.5	8.7	1,885	16.4					
1953	114.3	1,373	156.9	28.3	2,516	71.2	25.6	715	18.3	51.3	988	50.7	9.0	1,844	16.6					
1954	116.3	1,379	160.4	28.7	2,467	70.8	27.0	867	23.4	50.9	967	49.2	9.8	1,735	17.0					
1955	118.4	1,476	174.8	29.2	2,671	78.0	26.7	861	23.0	52.4	1,050	55.0	10.0	1,890	18.9					
1956	124.3	1,468	182.5	33.3	2,474	82.4	27.3	908	24.8	52.7	1,013	53.4	11.0	1,982	21.8					
1957	120.8	1,530	185.0	32.2	2,696	86.8	27.5	858	23.6	50.6	1,040	52.6	10.5	2,086	21.9					
1958	121.2	1,649	200.0	32.7	2,844	93.0	26.6	940	25.0	45.6	1,140	52.0	16.3	1,840	30.0					
1959	109.1	1,512	165.0	29.7	2,660	79.0	24.3	988	24.0	42.3	964	41.0	12.5	1,677	21.0					
1960	119.0	1,260	150.0	31.5	2,317	73.0	26.8	784	21.0	47.4	760	36.0	13.3	1,504	20.0					
1961	118.8	1,364	162.0	31.0	2,516	78.0	24.6	650	16.0	49.2	895	44.0	14.1	1,707	24.0					
1962	118.9	1,463	174.0	29.3	2,662	78.0	24.4	820	20.0	52.0	1,019	53.0	13.2	1,740	23.0					
1963	118.7	1,542	183.0	28.2	2,837	80.0	24.2	909	22.0	53.0	1,057	56.0	13.3	1,879	25.0					
1964	121.8	1,642	200.0	29.5	3,051	90.0	25.5	980	25.0	54.2	1,089	59.0	12.6	2,055	26.0					
1965	122.6	1,631	200.0	29.8	3,020	90.0	25.5	980	25.0	54.3	1,105	60.0	13.0	1,922	25.0					
1966	124.0	1,734	215.0	30.3	3,168	96.0	25.0	1,120	28.0	56.0	1,178	66.0	12.6	1,977	25.0					
1967	127.1	1,810	230.0	30.3	3,300	100.0	25.5	1,098	28.0	58.5	1,299	76.0	12.8	2,030	26.0					
1968	128.0	1,680	215.0	30.0	3,167	95.0	25.0	1,000	25.0	60.4	1,158	70.0	12.5	2,000	25.0					
1969	129.1	1,704	220.0	30.5	3,213	98.0	25.3	1,067	27.0	60.4	1,158	70.0	12.9	1,942	25.0					
1970	129.8	1,849	240.0	31.2	3,429	107.0	25.6	1,211	31.0	60.5	1,289	78.0	12.5	1,921	24.0					
1971	131.3	1,874	246.0	32.5	3,477	113.0	25.9	1,197	31.0	60.5	1,306	79.0	12.3	1,865	23.0					
1972	131.5	1,825	240.0	33.0	3,302	109.0	26.2	1,374	36.0	60.7	1,186	72.0	12.6	1,833	23.0					
1973	132.6	1,885	250.0	33.7	3,353	113.0	26.5	1,321	35.0	60.3	1,294	78.0	12.2	1,971	24.0					
1974	134.7	1,967	265.0	34.2	3,509	120.0	27.2	1,360	37.0	61.1	1,358	83.0	12.2	2,058	25.0					
1975	136.5	1,978	270.0	34.5	3,449	119.0	27.7	1,444	40.0	62.2	1,367	85.0	12.1	2,066	25.0					
1976 5/	137.5	1,943	267.0	34.7	3,400	118.0	28.2	1,525	43.0	62.4	1,314	82.0	12.2	1,967	24.0					
1977																				
1978																				
1979																				
1980																				

1/ Acreage and production data for 1949-57 from Ten Great Years, People's Publishers, Peking, Sept. 1959. Data for 1958-76, ERS estimates based on official sources for total grain and on interpolation of weighted values for individual grains. Sums of individual grains may not equal total grain because of rounding. Some adjustments were made in this series because of additional information. Tuber acreage and production were decreased. The decrease in production of tubers was reflected in an equal increase in miscellaneous grains, with yields being held the same as in the original series from 1958 through 1976. Since yields of tubers were larger than for miscellaneous grains, the acreage of miscellaneous grains was increased. This resulted in an upward revision of total grain acreage and a slight decline in the yield of total grain.

2/ Miscellaneous grains include coarse grains (corn, barley, oats, rye, sorghum, and millet), pulses and other minor grains.

3/ Tubers include white and sweet potatoes, manioc, and taro on a grain-equivalent basis.

5/ Some recent sources show 110 + m. t.

6/ Preliminary.

CONVERSION EQUIVALENTS

<u>Common Chinese measures</u>	<u>English equivalent</u>	<u>Metric equivalent</u>
1 mou (1 ko in Tibet)	0.1647 acres	0.0667 hectares
1 liang (tael)	0.1102 lb.	0.0500 kilograms
1 jin (catty)	1.1023 lb.	0.5000 kilograms
1 tan (picul)	110.23 lb.	50.00 kilograms
1 catty per mou	6.693 lb./acre	7.5 kilograms/hectare
1 picul per mou	669.3 lb./acre	0.75 tons/hectare

Conversion factors

One kilogram	equals	2.2046 pounds
One centner or metric quintal	"	220.46 pounds
One metric ton	"	2,204.6 pounds
One hectare	"	2.471 acres

Pounds per bushel

Wheat, potatoes, and soybeans	60
Rye and corn	56
Barley	48
Oats	32

Metric equivalents

<u>One bushel</u>	<u>Metric tons</u>
Wheat, potatoes, and soybeans02722
Rye and corn02540
Barley02177
Oats01452
<u>One metric ton</u>	<u>BusheIs</u>
Wheat, potatoes, and soybeans	36.743
Rye and corn	39.368
Barley	45.929
Oats	68.894

One metric ton of ginned cotton = 4.593 bales of 480 pounds; or 4.409 running bales of 500 pounds.

North Korea: 1 chongbo equals 2.45 acres or 0.99174 hectares.

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